

COMMONWEALTH OF AUSTRALIA

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Family Name	
Given Names	
Student Number	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Teaching Period	Semester 2, 2016

FINAL EXAMINATION	DURATION
HIT137 – Software Now	
	Reading Time: 10 minutes
	Writing Time: 180 minutes

INSTRUCTIONS TO CANDIDATES

Answer any Ten(10) questions.

Each question carries Five (5) marks. Total marks : 50.

EXAM CONDITIONS

You may begin writing from the commencement of the examination session. The reading time indicated above is provided as a guide only.

This is a RESTRICTED OPEN BOOK examination

No calculators are permitted

One A4 sheet of handwritten single-sided notes permitted

No dictionaries are permitted

ADDITIONAL AUTHORISED MATERIALS	EXAMINATION MATERIALS TO BE SUPPLIED
No additional printed material is permitted	1 x 16 Page Book 1 x Scrap Paper

**THIS EXAMINATION IS PRINTED
DOUBLE-SIDED.**

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Answer any Ten (10) questions.

Each question carries five (5) marks and the total achievable marks are 50.

Question 1

Write an array that will hold the following elements:

- Apple, orange, banana, kiwi, grape

Declare two variables of numeric data type :

- *Match*, *NonMatch*

Then write a loop that goes through the array doing the following each time it gets an element :

- If the letter “a” appears in the second index of the element, add 5 to *match*
- If the letter “a” doesn’t appears in the second index of the element, add 1 to *nonMatch*.

After the loop is finished, print the values of *match* and *nonMatch* to the console

Question 2

Variables and methods can be assigned different scopes within a program

- a. List these scopes and describe what level of visibility each of them provides
- b. Why is not a modifier used to assign a scope to a local variable?

Question 3

What is object oriented programming?

What are some features you would expect to find in an object-oriented programming language?

Are these feature present in Java ?

Question 4

Suppose the class Sub extend the class Sandwich. Which of the following assignments are legal :

Sandwich x = new Sandwich () ;

Sub y = new Sub ()

X=y;

Y=x;

Y= new Sandwich () ;

X = new Sub () ;

Note : Mark them “OK” or “Does not work” in your exam paper NOT in the question paper.

Question 5

```
class PassA
{
    public static void main(String [] args)
    {
        PassA p = new PassA();
        p.start();
    }

    void start()
    {
        long [] a1 = {3,4,5};
        long [] a2 = fix(a1);
        System.out.print(a1[0] + a1[1] + a1[2] + " ");
        System.out.println(a2[0] + a2[1] + a2[2]);
    }

    long [] fix(long [] a3)
    {
        a3[1] = 7;
        return a3;
    }
}
```

What will be output of the about source code, assuming no errors or warnings were detected. Explain in detail how do you arrive at the answer.

Question 6

```
class Test
{
    public static void main(String [] args)
    {
        int x= 0;
        int y= 0;
        for (int z = 0; z < 5; z++)
        {
            if (( ++x > 2 ) && (++y > 2))
            {
                x++;
            }
        }
        System.out.println(x + " " + y);
    }
}
```

What will be output of the above source code, assuming no errors or warnings were detected. Explain in detail how do you arrive at the answer.

Question 7

```
class SC2
{
    public static void main(String [] args)
    {
        SC2 s = new SC2();
        s.start();
    }

    void start()
    {
        int a = 3;
        int b = 4;
        System.out.print(" " + 7 + 2 + " ");
        System.out.print(a + b);
        System.out.print(" " + a + b + " ");
        System.out.print(foo() + a + b + " ");
        System.out.println(a + b + foo());
    }

    String foo()
    {
        return "foo";
    }
}
```

What will be output of the above source code, assuming no errors or warnings were detected. Explain in detail how do you arrive at the answer.

Question 8

```
/* Missing Statement ? */
public class foo
{
    public static void main(String[] args) throws Exception
    {
        java.io.PrintWriter out = new java.io.PrintWriter();
        new java.io.OutputStreamWriter(System.out, true);
        out.println("Hello");
    }
}
```

What line of code should replace the missing statement in the beginning of the program to make this program compile

Question 9

Which of the following statements will create instance of an array

- int[] ia = new int[15];
- float fa = new float[20];
- char[] ca = "Some String";
- int ia[] [] = { 4, 5, 6 }, { 1,2,3 };
- character [] ch = "Test"

Note : Mark them "OK" or "Does not work" in your exam paper NOT in the question paper.

Question 10

- a. What is inheritance and why would we want to use it?
- b. When using inheritance, does a subclass inherit both variables and methods of the superclass? Justify with example

Question 11

What is the difference between an object and a class ?

What is the use of a constructor in Java ?

Explain why a modifier is not used to assign a scope to a local variable?

What is polymorphism and why would you want to use it?

What kind of class cannot be instantiated as an object in Java? Why?

Question 12

Consider a class named “BankAccount”. It exists to manage information about a Bank account. Write the code that will create such a class with the following data and methods :

1. A balance of funds
2. A default constructor
3. An overloaded constructor that allows funds to be deposited when the Account is first created
4. A way to find out how much funds are held in the account.

! End of Questions !